

AMENDMENTS TO THE CLAIMS:

Replacement Claim Set:

1-15. (Cancelled).

16. (Currently amended) An anode of an electrochemical cell, wherein said anode comprises:

(a) an anode active layer comprising the reaction product of lithium metal co-deposited in-situ with one or more gaseous materials; and

(b) a substrate,

wherein the electrochemical cell comprises a cathode active material that includes one or more of the group consisting of: electroactive metal chalcogenides, electroactive conductive polymers, and electroactive sulfur-containing materials.

17. (Original) The anode of claim 16, wherein said one or more gaseous materials are selected from the group consisting of carbon dioxide, acetylene, nitrogen, ethylene, sulfur dioxide, and hydrocarbons.

18. (Original) The anode of claim 16, wherein said gaseous material is carbon dioxide.

19. (Previously Presented) The anode of claim 16, wherein said substrate is selected from the group consisting of metal foils, polymer films, metallized polymer films, electrically conductive polymer films, polymer films having an electrically conductive coating, electrically conductive polymer films having an electrically conductive metal coating, and polymer films having conductive particles dispersed therein.

20. (Original) The anode of claim 16, wherein said anode further comprises a multi-layered structure in contact with a surface of the anode active layer, on the side opposite to the substrate.

21. (Currently amended) An anode of an electrochemical cell, wherein the anode comprises:
an anode active layer comprising lithium metal and the reaction product of lithium with one or more gaseous materials; and a substrate.

22. (Canceled).

23. (Previously Presented) The anode of claim 22 wherein the gaseous materials are selected from one or more of the group consisting of carbon dioxide, sulfur dioxide, alkyl sulfites, alkyl sulfates, and alkyl phosphates.

24. (Previously Presented) The anode of claim 21, wherein the substrate is selected from the group consisting of metal foils, polymer films, metallized polymer films, electrically conductive polymer films, polymer films having an electrically conductive coating, electrically conductive polymer films having an electrically conductive metal coating, and polymer films having conductive particles dispersed therein.

25. (Previously Presented) An electrochemical cell comprising:

- (a) a cathode comprising an electroactive sulfur-containing material;
- (b) an anode; and
- (c) a non-aqueous electrolyte interposed between the anode and the cathode;

wherein the anode comprises an anode active layer, which anode active layer comprises lithium metal and lithium oxide.

26. (Previously Presented) The cell of claim 25 wherein the lithium oxide is formed by co-deposition in-situ of lithium with one or more gaseous materials.

27. (Previously Presented) The cell of claim 26, wherein the one or more gaseous materials are selected from one or more of the group consisting of carbon dioxide, acetylene, nitrogen, ethylene, sulfur dioxide, and hydrocarbons.

28. (Previously Presented) The cell of claim 26, wherein said gaseous material is carbon dioxide.

29. (Currently amended) The cell of claim 25 wherein the electroactive sulfur-containing material comprises sulfur in an elemental form.

30. (Currently amended) A method of making an anode of an electrochemical cell in a vacuum chamber wherein the method comprises:

- (a) providing a moving substrate;

- (b) moving the substrate consecutively past a lithium vapor deposition source, wherein the source is characterized by a nozzle through which lithium vapor is emitted;
- (c) providing reactive gaseous material adjacent to the lithium deposition nozzle; and
- (d) condensing the lithium vapor of (b) on the substrate in presence of gaseous material to co-deposit a lithium anode active layer to form the anode.

31. (Previously Presented) The method of claim 30, wherein the lithium vapor is condensed on the substrate by contacting the substrate with a cooled surface as the substrate passes through the vapor.

32. (Previously Presented) The method of claim 30, wherein the thickness of the co-deposited lithium layer of the anode is from 1 μm to 50 μm .

33. (Previously Presented) The method of claim 30, wherein the thickness of the co-deposited lithium layer of the anode is from 1 μm to 15 μm .

34. (Previously Presented) The method of claim 30, wherein the substrate is selected from the group consisting of metal foils, polymer films, and metallized polymer films.

35. (Previously Presented) The method of claim 34, wherein the polymer film is selected from the group consisting of films of polyethylene terephthalate, polyethylene naphthalate, 1,4-cyclohexanedimethylene terephthalate, polyethylene isophthalate, and polybutylene terephthalate.

36. (New) An electrochemical cell comprising the anode of claim 16, a cathode including the cathode active material, and an electrolyte disposed between the anode and cathode.

37. (New) A battery comprising one or more of the electrochemical cells of claim 36.